

Response Under 37 CFR 1.116  
Expedited Procedure  
Examining Group 2836

The claims, as amended, with status indicators, are set forth on the following pages.

Grewe (H)01PH0405USP US Patent Application 10/018,980  
Further Amendment After Final Action submitted in response to Office Action of 07/12/2005 and Advisory Action of  
12/5/2005— Submitted on 1/12/2006 by fax to (571) 273 8300

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Claims 1-20 (Cancelled)

21. (Currently Amended) An apparatus (1, 1', 1'') for modules (2, 2', 2'') connected to a supply voltage in series in a control and data transmission installation, comprising:  
at least only one supply voltage input (E, E', E'') and an associated supply voltage output (A, A', A''),  
a connecting device (3, 3', 3'') for connecting the supply voltage input to the supply voltage output in response to an ascertaining device (4, 4', 4'') for ascertaining at least one electrical variable at the supply voltage output,  
wherein the apparatus (1, 1', 1'') is arranged to detect a flowing supply current.
22. (Previously Presented) The apparatus as claimed in claim 21, wherein the apparatus is arranged for use with a bus in an automation bus system.
23. (Previously Presented) The apparatus (1, 1', 1'') as claimed in claim 21, wherein the ascertaining device (4, 4', 4'') is arranged to ascertain at least one electrical variable for detecting at least one of an electrical load and a short circuit.
24. (Cancelled)
25. (Previously Presented) The apparatus as claimed in claim 21, wherein the connecting device (3, 3', 3'') comprises at least one of a relay, a contactor and a semiconductor switch.
26. (Previously Presented) The apparatus as claimed in claim 22, wherein the apparatus (1, 1', 1'') comprises a bus connection device for connection to an automation bus system.
27. (Previously Presented) The apparatus as claimed in claim 22, wherein the apparatus (1, 1', 1'') is of a design to be configurable at least one of manually and via the automation bus system, and has at least one memory device for configuration storage.

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28. (Previously Presented) The apparatus as claimed in claim 21, wherein the apparatus has separate and electrically independent supply voltage inputs and outputs in each case for logic and for actuator equipment/sensor equipment of an associated module.
29. (Previously Presented) The apparatus as claimed in claim 21, wherein the apparatus (1, 1', 1'') comprises an associated module (2, 2', 2'') in a control and data transmission installation for a bus user in an automation bus system.
30. (Previously Presented) The apparatus as claimed in claim 29, wherein the associated module (2, 2', 2'') is connected to the supply voltage essentially downstream of the connecting device (3, 3', 3'').
31. (Previously Presented) The apparatus as claimed in claim 21, wherein the apparatus is arranged to detect a ground fault.
32. (Previously Presented) A control and data transmission installation, comprising at least one apparatus (1, 1', 1'') as claimed in claim 21, comprising at least one associated module (2, 2', 2'') that is electrically connected to the supply voltage in series with at least one other module, the apparatus being connected upstream of the other module.
33. (Previously Presented) A control and data transmission installation as claimed in claim 32, comprising a serial automation bus.
34. (Previously Presented) The control and data transmission installation as claimed in claim 33, wherein the automation bus comprises a bus in accordance with EN 50254, and at least a first module (2) of the modules (2, 2', 2'') connected to the supply voltage in series comprises an associated apparatus in a local bus section or bus spur.
35. (Previously Presented) A method for connecting and operating an apparatus as claimed in claim 21, comprising the following steps:

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- a) applying a supply voltage to the supply voltage input of the apparatus (1, 1', 1''),
  - b) detecting an electrical load or a short circuit at the supply voltage output (A, A', A''),
  - c) controlling the connecting device (3, 3', 3'') for connecting the supply voltage input (E, E', E'') to the associated supply voltage output (A, A', A'') in response to a detected electrical load or short circuit.
36. (Previously Presented) The method as claimed in claim 35, wherein the controlling step c) comprises the following steps:
- c1) comparing the detected load with a predetermined value, and
  - c2) connecting the supply voltage input (E, E', E'') to the associated supply voltage output (A, A', A'') if the detected load does not exceed the predetermined value.
37. (Previously Presented) The method as claimed in claim 35, wherein the controlling method step c) comprises the following step:
- connecting the supply voltage input (E, E', E'') to the associated supply voltage output (A, A', A'') if no short circuit has been detected.
38. (Previously Presented) The method for connecting and operating an apparatus as claimed in claim 35, comprising the following additional steps:
- detecting a flowing supply current, and
- breaking the connection between the supply voltage input (E, E', E'') and the associated supply voltage output (A, A', A'') if the detected supply current exceeds a predetermined value.
39. (Previously Presented) A method for connecting and operating series-connected apparatuses in a control and data transmission installation, comprising starting with a first apparatus (1), successfully connecting the apparatuses (1', 1', 1'') in each case as claimed in claim 34.

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40. (Previously Presented) The method as claimed in claim 39, wherein the connection takes place automatically or is controlled via the automation bus.
41. (Previously Presented) The method as claimed in claim 39, wherein an apparatus (1, 1', 1'') connected only partially outputs an error message to indicate a short circuit or an overload at its voltage supply output, the error message being output to an indicator device or via the automation bus in order to control the automation bus system.
42. (Previously Presented) The method as claimed in claim 41, wherein the error message output via the automation bus comprises at least one data item for identifying the apparatus (1, 1', 1'') connected only partially.